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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/806,191

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Bernd Bartenbach

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Herbert B. Keil  
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EXAMINER

BOYER, RANDY

ART UNIT

PAPER NUMBER

1764

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/806,191	BARTENBACH ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Randy Boyer	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 March 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>23 March 2004</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 6 is objected to for improper use of the plural form. As submitted, claim 6 reads "A process as claimed in claims 1, . . .". Examiner suggests correction by amending the claim to read "A process as claimed in claim 1, . . .". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim 8 includes the limitation "a fire-resistant ceramic stable at reaction temperature having an alumina content of at least 80%." The claim language is indefinite since it does not provide the basis for which the alumina content is to be measured (e.g. 80 wt. %, 80 mol %, etc.).

6. Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 20 provides for the use of "a process as claimed in claim 1" or "a reactor as claimed in claim 8"; but, since claims 1 and 8 do not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 20 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 1-8, and 11-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gravley (US 4765964), or alternatively over Gravley in view of Voll et al., "Carbon Black" in: *Ullmann's Encyclopedia of Industrial Chemistry* (1986 ed.), vol. A5, pp. 144-148.

12. With respect to claim 1, Gravley discloses a process for carrying out a high-temperature reaction, in which starting materials are supplied to a reaction chamber through channels of a burner block (see Gravley, column 3, lines 15-16), where in the reaction chamber the high-temperature reaction having a short residence time takes

place at a temperature of at least 1500°C (see Gravley, column 7, lines 56-60) and the reaction mixture is subsequently rapidly cooled in the quench area (see Gravley, column 6, lines 37-39), characterized in that in the quench area firstly a direct cooling takes place by supply of an evaporating quench medium.

Gravley does not disclose wherein the direct cooling results in a lowering of the temperature to the range from 650°C to 1200°C nor that such direct cooling is followed by indirect cooling in a heat exchanger.

However, such process conditions are known in the art for the same type of process that Gravley discloses. For example, Voll discloses a process whereby direct cooling results in a lowering of the temperature to 800°C (see Voll, page 146) followed by indirect cooling in a heat exchanger (see Voll, page 147).

Therefore, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to operate the process of Gravley at conditions whereby indirect cooling resulted in a lowering of the temperature to the range from 650°C to 1200°C followed by indirect cooling in a heat exchanger.

13. With respect to claim 2, Gravley discloses wherein the starting materials are premixed (see Gravley, column 3, lines 24-27).

14. With respect to claim 3, Voll discloses direct cooling resulting in a lowering of the temperature to 800°C (see Voll, page 147).

15. With respect to claim 4, Gravley discloses wherein direct cooling takes place in one stage (see Gravley, column 6, lines 37-43).

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16. With respect to claim 5, Gravley discloses wherein the quench medium is water (see Gravley, column 6, lines 51-54).

17. With respect to claim 6, Voll discloses indirect cooling to a temperature less than 300°C (see Voll, page 147).

18. With respect to claim 7, Voll discloses wherein the indirect cooling is utilized for the generation of steam (see Voll, page 147).

19. With respect to claim 8, Gravley discloses wherein all surfaces restricting the reaction chamber are formed of a fire-resistant ceramic having an alumina content of at least 80% by weight (see Gravley, column 5, lines 49-53).

20. With respect to claims 11 and 12, Gravley discloses a transition of the reaction chamber to quench area designed in the form of an annular gap having a width in the range from 2 to 200 mm (see Gravley, column 6, lines 31-34, and column 10, line 39).

21. With respect to claim 13, Gravley discloses a reaction chamber designed in the form of an annular gap (see Gravley, Figure).

22. With respect to claims 14 and 15, Gravley discloses channels in the burner block aligned in the direction of the longitudinal axis of the reaction chamber (see Gravley, Figure).

23. With respect to claim 16, Gravley discloses a quench area constructed with alignment in the direction of the longitudinal axis of the reaction chamber (see Gravley, Figure).

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24. With respect to claims 17 and 18, Gravley discloses the supply of quench medium via quench nozzles attached to one or more distributors arranged radially to the main flow direction of the reaction mixture (see Gravley, Figure).

25. With respect to claim 19, Gravley discloses a process for the scale-up of a reactor characterized in that for a throughput enlargement the internal diameter of the reactor is enlarged and the gap size at the transition from the reaction chamber to the quench area is kept constant (see Gravley, Table I, runs 8 and 9).

26. With respect to claim 20, acetylene is a known product of the partial combustion of methane with oxygen. Thus, Gravley provides an inherent disclosure for a method for the preparation of acetylene by partial oxidation of hydrocarbons using oxygen.

27. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gravley (US 4765964) in view of Bakker (US 3640739).

28. With respect to claim 9, Gravley discloses a process for carrying out a high-temperature reaction, in which starting materials are supplied to a reaction chamber through channels of a burner block (see Gravley, column 3, lines 15-16), where in the reaction chamber the high-temperature reaction having a short residence time takes place at a temperature of at least 1500°C (see Gravley, column 7, lines 56-60) and the reaction mixture is subsequently rapidly cooled in the quench area (see Gravley, column 6, lines 37-39), characterized in that in the quench area firstly a direct cooling takes place by supply of an evaporating quench medium, and characterized in that all surfaces restricting the reaction chamber are formed of a fire-resistant ceramic having an alumina content of at least 80% by weight (see Gravley, column 5, lines 49-53).



Gravley does not disclose wherein the fire-resistant ceramic is introduced into the reaction chamber in the form of stones or bricks or as a cast or tamped mass and subsequently compressed, dried, and calcined.

However, Bakker discloses a refractory material made from a high purity alumina refractory brick batch mix consisting of 85% – 95% alumina by weight (see Bakker, column 2, lines 10-12). Bakker discloses that the refractories of his invention are of increased strength, higher density, lower porosity, and higher refractoriness than other refractories commercially available (see Bakker, column 1, lines 62-67). Bakker further discloses whereby the alumina refractory ("fire-resistant ceramic") is shaped into bricks, compressed, dried, and calcined (see Bakker, column 3, lines 58-70).

Therefore, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to line the inside of the reaction chamber of Gravley with the fire-resistant alumina refractory of Bakker so as to provide a more durable refractory sufficient for use under high reaction temperatures.

29. With respect to claim 10, Bakker discloses pressing the refractory mix into any desired shape (see Bakker, column 3, lines 58-59).

### ***Conclusion***

30. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Randy Boyer whose telephone number is (571) 272-7113. The examiner can normally be reached Monday through Friday from 8:00 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola, can be reached at (571) 272-1444. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RPB



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